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Agriculture and the Coast:

A Staff Working Paper

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Note: This staff working paper is one of a series of Issue and Policy Alternative Papers presenting facts, analyses, and conceptual policy alternatives on coastal resources and coastal land and water resources. The purpose of this draft document is to stimulate discussion and comments that will assist preparation of the management program for the New Jersey coastal zone. This report was prepared in part with financial assistance under the Coastal Zone Management Act, P.L. 92-583.

Comments, criticisms, additions, and suggestions are welcome and should be addressed to the Office of Coastal Zone Management.

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INTRODUCTION

The coastal zone contains a substantial amount of agriculture land. Agriculture is a rapidly dwindling activity as a result of decisions by many individuals, both farmers and developers. Agriculture becomes an issue of possible concern to the coastal zone management program because these many private decisions are cumulatively having a public impact which is being implemented without public study, debate, or decision-making. Coastal Zone Management may be able to help determine:

1. Are current trends leading to a loss of agricultural land, product and employees desirable? and
2. If they are not, what can or should be done to change their direction or speed?

This paper is intended to further debate on important agricultural issues. The first section briefly defines these issues in the coastal area and then presents alternative policies which could be part of the coastal zone management program in New Jersey.

Section III provides characteristics of agriculture in New Jersey's coastal area in terms of state and national farm production and income.

Section IV analyzes social, economic and environmental problems related to agriculture.

Five appendices conclude the paper. First,

coastal zone regions with a substantial amount of agriculture land are examined individually and problems specific to the region are highlighted. The second appendix discusses possible management tools which could be used to implement agriculture policies. The final three appendices provide tables and figures, notes and sources used to support and reference the text.

I. ISSUE

Land most suitable to farming often is also the land most suitable for development. Once developed for residential, commercial, or industrial uses, the land cannot be reclaimed for agriculture since soil is a non-renewable resource. At present there is little control of which agricultural land is converted to other types of land uses. Some areas with little actual loss may still have a latent potential for loss because of ownership petterns and other economic and legal realities. Must of the land leaving agriculture is the most viable in terms of inherent soil quality, slope, aesthetics, and irrigation suitability. Agriculture must then use marginal lands, at increased economic, social and environmental costs.

While agriculture provides non-quantifiable benefits, to date these forces have not been distinctly helpful in preserving New Jersey's remaining agriculture. Low farm profitability and growing real estate values continue to erode the effectiveness of the Green Acres, Open Space, and Farmland Tax Abatement programs. New Jersey agriculture will continue to decline in importance relative to the agriculture of other regions and states. Secondary supporting industry will be affected, being dependent on a critical acreage of each type of agricultural activity. Economically, agriculture in New Jersey is not strong or significant. Farmland is more valuable for non-farm use. Other justifications for the preservation of farmlands should come into the decision making process.

An important related issue is the creation of desirable and harmonious pattern of development. Conflicts between results of farm practices (noise, smell, air pollution, pesticide spraying, machinery transport, etc.) and alternate uses of adjacent land (residential communities, commercial development, traffic corridors, etc.) draw attention to the need for well planned land use patterns. While, in some cases, small isolated farms may legitimately be replaced with development, large farms within large contiguous farming communities are worthy of careful consideration.

Special farming practices such as the use of greenhouses deserve special consideration. While some of the larger

greenhouse units offer economic advantages in production of several crops they also impose unique environmental costs: increase in per-acre energy and water use, loss of open space and aesthetics, loss of soil capability, concentration of pesticide and nutrient, and increase in runoff.

The impact of agriculture upon the environment is mixed. It is environmentally attractive in that it causes negligible air pollution, provides wildlife habitat and forage, and may be aesthetically pleasing. However, the clearing of undeveloped land for agriculture effectively removes entire ecosystems and increases surface runoff and erosion. The application of fertilizers and pesticides, even if done properly, leaches into the groundwater and nearby streams. The consumptive use of groundwater for irrigation purposes lowers groundwater reserves and reduces flow in streams.

Another issue is the change in types of farming in New Jersey. This is leading to an increase in field crop production and decreases in livestock and their products. Especially since 1971, there has been a large loss of vegetables and a slow decline in fruits. There is also a loss of specific gourmet items such as strawberries.

The change in types of farm products being produced in New Jersey results from changes in the competitive market place as well as regulations (e.g. labor and environmental)

controling farming activities. As other areas produce a product more cheaply, local farmers are forced to either change to more competitive products or go out of business. Also, with the introduction of machinery replacing much farm labor, farmers are often able to produce more for less. In the case of New Jersey agriculture, this has lead to an increase in many types of crops conducive to mechanized farming (especially the field crops).

II POLICY ALTERNATIVES

These policies are conceptual attempts to address the issues stated and analyzed in this document. They are intended to open debate on potentially controversial topics, and they are not final judgements. Some are conflicting, some are general and some are specific.

1. A general program for maintaining lands in agriculture could be encouraged. Farmland with high capability for agriculture production would be given high priority. This would include the development of criteria in order to identify prime farmland in production. Criteria to be considered include: compatability of the agricultural practices with environmental problems and resources, soil suitability, present surrounding land use patterns, contiguity of fields, aesthetic quality, and development pressure. This criteria will be made specific to each type of agricultural activity.

2. A program for maintaining prime nonfarmland in an undeveloped state could be encouraged. Maintenance of prime nonfarmland would allow for future conversion to agricultural activities. Some actively farmed land could

be allowed to cyclically convert to old fields rather than being lost to development. In converting back to agricultural use, the existing wildlife value could be considered.

3. An analysis could be made of the agricultural economy in the coastal zone. Low farm profitability, growing real estate values, and New Jersey's place in the national agricultural market would be weighed against other non-quantifiable elements of agriculture. This would include an analysis of the effect on the agriculture economy of legal controls (e.g. environmental, tax and labor laws). This analysis would be used to develop a plan for viable long-term protection of agriclutural lands.

A stable districting pattern could be developed which would establish an urban-rural boundary. This plan would take into consideration: the secondary effects of parceling large contiguous agricultural areas and the economic relationship of agricultural lands, service facilities, and agricultural related industries. The economic viability of regional agricultural activities is the central concern here.

4. Development types and patterns which show an appreciation for the preservation of prime agricultural land could be encouraged. This would include the consideration of Cluster Development, Planned Unit Development and Development Districts. In each of these schemes, development would either use prime

agricultural land as part of its open space plan or restrict development from such land all together.

5. Farmland with lower capability for agricultural production could be conserved. Criteria would be established similar to those of policy 1. Construction would be given as to whether the land is supportive (e.g. forest land surrounding cranberry bogs), additive (e.g. valuable adjoining hillside pasture land) or acts as a buffer from incompatible land uses. A developer would be required to prove the infeasibility of maintaining the land in its present agricultural use.

6. Special consideration could be given to practices which degrade the full potential of agricultural land. Practices which need control would include: division of large contiguous farms decreasing the potential economic viability and land conversion near agricultural communities incompatible with each other.

7. A diversity of desirable agricultural products could be encouraged. Crops which add to the enjoyment and nutrition of New Jersey's residents would be encouraged. Basic economics, mechanization of agriculture, difficulty of obtaining farm labor, legal controls and competition are among those factors encouraging a change in types of crops grown in New Jersey. Criteria could be established to identify those crops most desirable to the health and enjoyment of New Jersey's residents. There would be an analysis of the desirability of various ranges of diversity and the economic realities of each range.

8. Consideration could be given to the environmentally degrading factors of agriculture. Criteria could be established to provide maximum co-existence with prospective surrounding land uses. Conservation practices would be supported, such as those proposed in "Standards for Soil and Sediment Control in New Jersey." A balance between environmental controls and economic profit would be considered.

9. Agriculture could be ignored by the Coastal Zone Management Program. Agricultural land would be treated no differently from other undeveloped land. The economics of the free market would be left to decide the fate of agriculture in the coastal zone.

III AGRICULTURE CHARACTERISTICS

A. New Jersey and Northeast Regional Agriculture in a National Context

While New Jersey's agriculture is generally considered to be relatively insignificant within the national agricultural situation, the state is an important producer of some farm commodities. In this section the state's farm commodities are examined in terms of their significance by several indicators for 1974, the most recent year for which complete data is available.

New Jersey is the most densely populated state in the nation, but it exhibits a diversity of land use patterns. About 1.1 million acres are in farms in New Jersey, constituting nearly 23% of the state's 7,505 square mile land area. Of this, pasture represents about 3%. Most of the farmland contains soil of capability class I, II, or III. On a scale of eight, this is an indication of high soil suitability for most kinds of field crops.

Agricultural land is unevenly distributed throughout the state. Sussex, Warren, and Hunterdon Counties and the

seven most southern counties contain the majority, 75%, of the class I through III land in active farming (see figure 1 and table 1). This is also reflected by the leading county producers for each major crop (see table 2). Together, table 3 and Appendix A profile each counties agricultural production (acreage) for major crops and also indicate trends of production.

Farm Receipts, 1974

Cash receipts from New Jersey agriculture were high in proportion to the state's size. With 7,500 square miles of land area, New Jersey occupies 0.21 percent of the total land area in the United States. Cash receipts from New Jersey farm marketings, however, were 340 million dollars in calendar 1974, which was 0.36 percent of the 92 million dollar agricultural cash receipts for the entire United States. (Table 4). Cash receipts were divided between livestock and livestock products: 33 percent from livestock and 67 percent from crops in New Jersey; compared to 45 percent and 55 percent, respectively in the United States including Alaska and Hawaii (Table 4).

New Jersey's distribution of farm receipts paralleled that of the nation in 1974; Farm receipts for the state were generally quite stable. In the field crop category, wheat, corn, soybeans, and small grain yields averaged higher than those of the previous years, and average prices for all field crops but potatoes and sweet potatoes were up from the previous year. In the vegetable crop category, fresh market vegetable production was down slightly from the previous year, but processing vegetable production was up significantly to account for an increase of 20 percent in the vegetable crop value over the previous year. In the fruit and berry category, combined

value of the six principal crops was up from the preceding year. Value of inventories in the livestock and daily category was not favorable: inventories and value of inventories were generally down. Production and receipts in the egg and poultry category were also down.

National cash receipts from farm marketings set a record high while the total volume of output was stable. In the field crop category, corn and soybean receipts were up despite the poor return of the 1974 crop, wheat receipts were up while volume was stable (and rice and tobacco receipts were up while volume also increased). In the vegetable category, receipts were higher for tomatoes, sweet corn, peas, and cucumbers. Receipts were generally higher in the fruit and nut category. In the livestock and livestock products category receipts were down with the exception of dairy producer receipts. In the poultry and egg category, receipts were sharply down with the exception of the receipts for eggs which were only slightly down. For the first time since the mid-1920's crop receipts were larger than livestock receipts.

Methodology of Measuring Major Farm Commodities

Major farm commodities must be measured to account for their contribution to both national and state inventories and economies. Tables 5 and 6 summarize state produced crops and livestock by three parameters: production, value of production, and productivity.

Production is a measure of the number of units of a specific farm commodity produced or in inventory per year, net of spoilage or loss. Production figures indicate the contribution of the New Jersey farm sector to maintaining production

or stocks of farm commodities, and as such are ranked in respect to production levels of other states. Farm commodities which are ranked among the top ten states of production are considered sufficiently important to warrant further study of their value to the national and state interests.

Value of production is a measure of the size of gross income attributable to the crop or product. The top ten farm commodities by value of production and by ratio of value of state production to value of national production are considered sufficiently important to warrant further study of their value to the national and state economy.

Productivity is a measure of output per unit input. The productivity values given in Table NC 4 are farm commodity yield per acre harvested, or land productivity. Land productivity is an indication of the intensity of agriculture practiced and not an indication of the intrinsic suitability of the land to support the particular agricultural activity in question. Nor does it reflect the profitability of farming, for this depends both on the receipts received for the farm goods and the costs incurred in the production of farm goods. Therefore, the land productivity figures given in Table 5 are to be used with discretion as a measure of which crops in New Jersey are considered worth the intensive farming which is critical but all to frequently not sufficient for financially remunerative farming.

An extremely coarse but comprehensive measure of productivity is the index of farm output to the index of farm input, indicative of the efficiency of converting resources

into products. The index is not an absolute but rather a relative measure useful only in observing trends for each region for which the index is calculated. A base year and absolute measure of productivity must be established if comparisons of actual productivity between regions are desired. This index is discussed in more detail in a subsequent section.

Determination of Major Farm Commodities

A list of major farm commodities produced in New Jersey is derived by using the measures of production and value of production and an arbitrary but reasonable definition that a major New Jersey farm commodity is: (1) ranked in the upper 20 percentile of states by production of that farm commodity for all of the 48 contiguous United States; (2) is ranked in the upper 20 percentile of farm commodities by the ratio of value of production for New Jersey to the average value of production for the contiguous United States; and (3) is ranked in the upper 20 percentile of farm commodity by value of production for New Jersey. The upper 20 percentile is interpreted in (1) as the top 10 states and in (2) and (3) as the top 10 New Jersey farm commodities.

This list is given in Table 7. Note that only rarely does a farm commodity appear both because of its importance to the state's economy as measured by the value of production and because of its national significance. Only peaches and tomatoes qualify. Generally, field crops and livestock provide a large value of production relative to other farm commodities

while fruit crops and vegetables show significant production and value of production relative to those of other states.

County and state harvest trends for the farm commodities listed in Table 7 are presented in a subsequent section.

B. Agriculture in New Jersey's Economy

Gross Product in the Farm Sector

Estimates of gross state product by sector and industry provide comparisons of the relative economic movement and importance of those industries within the State. Gross state product (GSP) is the dollar value of the output of goods and services produced by a state's economy in the current year, before deduction of capital consumption allowances but after deduction of intermediate inputs. When determined by industry, GSP represents the value of production (sales plus inventory change) in each industry, less its purchases of materials and intermediate services.

The GSP in 1958 dollars for New Jersey for the years 1950 through 1973 has been determined and is given in Table 8. Gross product in the farm sector has dropped, in real terms, sharply since 1960; in 1973 it was 57% lower than in 1960, 42% lower than five years previous (1968) and 17% lower than the preceding year, 1972. In 1960, gross product in the farm sector was 1.1% of GSP. In 1963, gross product in the farm sector was 0.8% of GSP; falling to 0.6% of GSP in 1968 and to only 0.3% of GSP in 1973.

Nationally, gross product in the farm sector has grown in absolute terms but has fallen relative to GNP (Table 9 and Figure 3). The farm sector, however, remains a much more significant proporation of GNP than New Jersey agriculture is of GSP. Both figures and trends are striking. In 1973, agriculture represented only 0.3% of the market value of goods and services produced in

New Jersey as compared to 3.4% of the market value of goods and services produced in the nation. The national gross farm product has increased--although relative to GNP it has decreased--while New Jersey's gross farm product has decreased (Table 8 and 9). In terms of percent of gross product, agriculture has decreased markedly more rapidly in New Jersey's economy than it has in the national economy (Table 10).

Agriculture and Dependent Industries

Agribusiness, composed of farming and closely related industries, includes industries from three major sectors: the farm supply industry, the farm production sector, and the food and fiber processing and marketing sector. Some state industries in these sectors are absolutely dependent upon New Jersey agriculture and would either close or move from the state were New Jersey farm production to cease. In determining the contribution of New Jersey agriculture to the state's economy, the value of the output of these industries must be addressed.

Information demonstrating the degree of dependency of agribusiness industries upon farm production is not readily available. The highly industrialized eonomy of the state, compared with the relatively small agriculture economy, suggests that, in the agribusiness industries, most raw and intermediate products are imported from outside of the state. Information developed by Charles E. Lambert Associates (1) are indicative of the dependent industries which will be used in this section to

determine a gross product for agribusiness in New Jersey. This will not be a vigorous analysis, rather the resulting determination of gross agribusiness product will yield an estimate of the range of possible values.

Lambert Associates chose to set guidelines to insure that only relevant industries were included. The first guideline is that a significant relationship between an industry and farm commodities produced in the state must exist. The second guideline is that the industry must purchase a significant portion of its raw material input from the New Jersey farm commodity market. "A significant portion" was agreed to be at least 20% of an industry's raw material requirements.

A Note on Methodology

The methodology used in modifying the gross state product table to include what might loosely be referred to as a gross agribusiness product, only roughly approximates the range of possible values. The range is determined within each industrial sector by applying a ratio of the major gross product component (value added for manufacturers, payroll for trade) to the gross product estimate for the respective sector, and including the result in the gross agribusiness product. Other components of gross product are not included. Although error is likely, these estimates are tolerable as first approximation planning figures.

The dependency estimates by Lambert are applied to both 1972 and 1967 census data. Since the Lambert study was done in 1968, it is compatible with 1967 census data. These dependency estimates were applied without modification to 1972 data since (1) no better data were available and (2) updating the dependency estimates is a major product beyond the scope of this effort. Consequently, revisions to the 1972 gross farm product are less reliable than revisions to the 1967 data.

New Jersey's Gross Agribusiness Product

Modifications to gross farm product to produce a gross agribusiness product are given in Table 13. The figures reported for each sector represent the portion of that sector's gross product attributable to New Jersey agriculture. Four estimates of gross agribusiness product are provided for each census year studied, 1972 and 1967.

The low and high estimates are unrealistic. The low estimate assumes no dependent industries, while the high estimate assumes all related industries. The most likely low and the most likely high estimates are reasonable. The most likely high estimate assumes 100 percent dependency of related industries, but related in this case is narrowly defined by the Lambert criteria. The most likely low estimate applies the Lambert dependency ratios (Table 11) to the most likely high estimate.

The gross product component of New Jersey agribusiness is

quite small. Most likely the gross agribusiness product ranges between 0.6% and 1.2% of Gross State Product for 1972 (0.9% and 1.5% for 1967). The broadest possible range is 0% to 4.5% for 1972, 0% to 5.2% for 1967. New Jersey's agriculture and dependent industries is not a major economic sector of New Jersey's economy.

The arguments offered above to show the minor economic importance of agriculture in the state do not imply that the economic value is small. On the contrary, the value as measured by certain kinds of private expenditures is obviously high. Residential property adjacent to farmland is high-priced in some areas. No matter how much or how little income is produced from agriculture in the state, the very existence of these two sectors may have a great deal of importance in the state economy. Farmlands and beaches, lakes and forests, obviously provide amenities that make the communities of the state attractive, and the presence of those communities of residents drawn by these attractions who compose a large market of high-income consumers as well as a large labor force of valuable employees is one of the state's principal economic resources.

C. Farm Production and Efficiency

New Jersey's land is most suited to intensive agriculture. It is often the case in southern Jersey that the soils are infertile but highly productive; Productive farming is obtained there by large additions of fertilizer, lime, and water.

A good measure of farm productivity is the index of farm output per unit of input. It is a general measure of the efficiency of converting resources into farm products.

The index is available only on a regional basis, and is accurate relative to other years within a region but not for different years between regions. New Jersey has been classified by the United States Department of Agriculture in the Northeast farm production region, which also includes the New England states, New York, Pennsylvania, Maryland, and Delaware. Regional figures do not strictly apply to New Jersey but should be roughly indicative of farm productivity changes within the state.

Trends in the Northeast

The Northeast has experienced generally increasing levels of farm productivity over the last two decades. This increase has been achieved principally through improvements in the index of total farm inputs (Table 14). Farm inputs vary as expected: indexes of farm labor and real estate have declined, indexes of mechanical power and machinery, fertilizer and liming materials, feed, seed, and livestock purchases have increased; and the index

of taxes and interest have remained relatively stable (Table 15). Farm output has not significantly changed, although changes within the livestock and livestock products and the crops sectors are common (Table 14).

The Index of Farm Productivity does not permit absolute comparisons between regions but does allow comparison of the changes in farm productivity over time between regions. Since 1967, the base year, Northeast farm productivity has varied considerably. In 1972 it was down 7 percent from 1967. No other region showed a loss in farm productivity for 1972 relative to the base year. In 1972 the region ranked 10th out of ten regions for change in farm productivity from the base year 1967; in 1971 it ranked 8th; in 1970 it ranked 5th; in 1969 it ranked 6th; and in 1968 it ranked 8th with the Appalachian states. The Northeast states ranked consistently lower than the national average change in productivity with the exception of 1970.

An explanation of the Northeast's relatively poor improvements in farm productivity may be that the twin burdens of high taxes and high land values have removed the less efficient farm operations from competition, causing the Northeast to achieve an "efficiency plateau" where efficiency is achieved as new techniques and products are available and not by increasingly greater number of farmers upgrading their operations. If this is so, other regions will continue to outstrip the Northeast in productivity improvement. This implies that the Northeast and New Jersey agriculture will continue to decrease in importance relative to the agriculture of other regions and states as these achieve

greater production.

The Methodology of the Farm Productivity Index

Farm Productivity is defined (2) as:

> "The ratio of the index of the volume of output to the index of the volume of all associated tangible inputs, with both indexes based on constant dollars... The measurement of output includes the annual production of crops and livestock available for human consumption. The measure of inputs includes all production factors that are influenced directly by decisions of farmers--farm labor, land and service buildings, machinery and equipment, fertilizer and lime, feed, seed, and livestock purchases, and a group of miscellaneous production items."

Intangible capital inputs to agriculture are generally not included in the calculation of the input index. Intangible capital inputs might include public and private investment in education, research, health, and social organization. However, some intangible capital inputs are of necessity indirectly included, since real estate and personal property taxes and production inputs purchased directly from the non-agricultural sector are considered.

Detailed descriptions of the methodology are available from the sources listed at the end of the chapter. The tables of indexes of farm productivity, farm inputs, and farm outputs are available from the series Changes in Farm Production and Efficiency.

IV ANALYSIS

Three central Agriculture issues need examination: Economic problems, the loss of farmland and its related issues; and environmental relationships and compatability.

A. Economic Problems of Agriculture

Historically, agricultural activity has been determined by five basic characteristics: (1) price inelasticity; (2) income inelasticity; (3) competition; (4) technological and economic change, and; (5) resource fixity. New Jersey's agricultural activity is influenced by these characteristics but is in addition heavily influenced by high market land values and high property taxes.

Price elasticity refers to the realtionship between a change in demand or consumption patterns and the price charged for the product. Price elasticity for farm commodities in the relatively wealthy United States is very low, which means that changes in prices for farm commodities evoke little change in domestic consumer buying patterns.

Income elasticity of demand relates changes in comsumption patterns to changes in income. This ratio is also quite low for the United States, which implies that as domestic consumers increase their real earnings position, purchases of farm commodities remain relatively stable in quantity.

Technological and economic change has been rapid in the industry. Technology has made possible the mechanization and electrification of farms and has produced hybrid crops and livestock, fertilizers, insecticides, and growth regulators. These changes has increased farm output relative to farm input, encouraging larger farm sizes, increased specialization and creating the beginnings of capital barriers to the entry of new farmers.

Agriculture is also characterized by the use of fixed productive inputs by the industry, particularly as the industry becomes increasingly mechanized. Capital (machines and buildings) is quite specialized to agricultural production and cannot be readily shifted between alternative uses. However, between crops, capital resources are not so fixed and shifting is possible and quite frequent.

Individually, these characteristics are important. Inelastic demand means that a modest surplus of farm commodities will result in sharply lower prices and income. Income elasticity means that errors of resource allocation persist, and small technical or economic improvement may easily push production beyond conceivable demand. Rapid technical and economic change force the farmer into adoption of new equipment and practices which only marginally improve, or perhaps only maintain, the farmer's economic position while increasing the value of his fixed resources. The price for not updating is a decreasing return on investment. The price for updating is acquisition of sophisticated equipment and knowledge not transferable from

agricultural production.

Characteristics of New Jersey's agriculture are quite similar but vary in two crucial aspects. First, the value of land is terms of percent of all inputs has steadily decreased; that is its value for other economic activities is considerably less than its value for agriculture nationally. However, while the value of New Jersey agricultural land in terms of percent of all inputs has followed national trends, New Jersey agricultural land is not a fixed agricultural resource--the land is considerably more valuable for non-farm use. Second, taxes on New Jersey farmland are extremely high and consitute a major farm input expense.

The implications of higher valued and higher taxed agricultural land are important. Agricultural land near developing areas assumes great market value and is not a fixed farm resource. A major impediment to transfer of individuals from farming is removed, although--as will be subsequently discussed--prefernetial farmland assessment allows farmers and speculators alike to hold on to their farmland until they wish to sell. However, much agricultural land in New Jersey remains of very little value for anything but agriculture. Where this is true--particularly in southern New Jersey--preferential farmland assessment does little to reduce the property tax burden, and the fixity of the land resource along with the historic farm characteristics confines the farm owner to a very narrow range of options.

B. Loss and Abandonment of Farmland in the East

The Blueprint Commission has used the phrase "impermanence syndrome" to describe New Jersey's agricultural situation. There is in fact a sense of impermance in areas where urban pressures are significant, where farmers can recover high capital investment costs by sale of land of market-enhanced value. There is impermanence in another sense, too, in areas where land values are lower. Farmers who cannot afford the capital outlays to effectively compete in the national market steadily fail, their unattractive farms and fallow fields bearing silent testimony to high taxes and the high cost of other capital farm inputs. New Jersey reflects the high cost of farm inputs that exists in the nation, but also has the second highest taxes per acre in the nation; only Rhode Island is higher (1973 basis).

New Jersey is not alone in its loss of farmland, (Table 17) and is in fact overshadowed by losses in other areas. According to Hart (3),

> the heaviest absolute losses of cleared farm land in the East between 1910 and 1959 were concentrated in eight areas:
>
> (1) eastern Ohio, western Pennsylvania, and northern West Virginia;
>
> (2) the south Piedmont in Alabama, Georgia, and South Carolina:
>
> (3) southeastern Michigan;
>
> (4) southern New England and eastern New York;

(5) western New York;

(6) the lower Ohio River Valley;

(7) Megalopolis; and

(8) the Chicago-Milwaukee area.

Hart concluded that while urban expansion is the major cause for the permanent loss of eastern agricultural land from production, it may have accounted for no more than a fifth or a third of the total area of cleared farm land which was lost between 1910 and 1959. Other reasons include coal strip mining, the loss of a major crop, governmental programs, and acquisition by a forest industry. Underlying these apparent reasons, however, is the factor of poor land quality; soil which is too shallow, too stony, too sandy, or too infertile; a land surface which is too steep or frequently broken for effective use of modern farm machinery; or small sized farms.

Urban expansion, which is the principal cause of farmland loss in New Jersey, is a relatively minor cause in much of the East.

The principal cause of the loss of farmland is urban expansion. Those lands most suitable for farmland are those lands physically most suited to development as well. Considerable farmland is owned by non-farmers and rented or leased back to active farmers. Most of these rentals exist in central New Jersey, including the counties of Mercer, Hunderdon, Monmouth, Middlesex, and Burlington. Whether for speculation

or otherwise, this ownership pattern while providing favorable economic situations for farmers, helps to create an impermanent situation in the transition from farmland to development. Both farming and non-farming owners are often looking for economic gain from the sale of their land.

The development of a portion of a large contiguous farming community has a secondary, long-term affect on surrounding farmlands. The value of the land rises, its aesthetic character diminishes, and conflicts arise between activities. The rest of the rural farming communities then lose some of the benefits inherent to large farming communities. There becomes less and less of a reason to preserve the area as development encroaches.

Another study by Zeimetz et. al. supports Hart's conclusions. From 1960 to 1970 urbanization has not greatly encroached upon the total supply of land used for crops at the national level. Further, advancing urbanization usually involves intensification of use, say from residential to commercial-industrial, rather than expansion to rural areas. From Zeinmetz (4):

> Cropland declined from about 33 percent of the total study area in 1961 to 30.4 percent in 1970. Only 49 percent of this net decline resulted directly from urbanization. More new cropland was developed, in fact, than was lost to urban development. Other factors accounted for more cropland decline than urban encroachment. These include abandonment of marginal cropland to pasture and diversion of cropland to open idle as changing technology makes farming of some land uneconomical.

C. The Environmental and Social Case for Agriculture

In the New Jersey Department of Community Affairs' Horizon Plan, eleven development alternatives were prepared for study. At the State's "horizon population" of 20 million people, under the existing zoning pattern the entire State would be "wall-to-wall" suburbs, an expansive area of moderate and high density development. A completely developed State might be a workable situation, but not desirable. The range of choice of living environments is extremely restricted. The development pattern does not encourage the optimal use of developed land and existing infrastructure, does not assure conformance to the State's physical characteristics, does not provide for open space and for conservation and management of the State's natural resource. Four of the eleven development alternatives would incorporate open space as a crucial element of the plan' three others would considerably restrict development and provide for extensive areas of open space. In either instance, fallow, waste, park, forest, and farm land all will satisfy open space requirements. Of these farmland is the most economically productive forest and fallow land the most environmentally sound, park land and most socially popular.

This is an example of a use of agriculture which is both economically sound and socially beneficial: use of agriculture to serve as open space in guiding development providing an appropriate use for flood plains and providing diversity in the environment. It should be stressed that in this instance the

social benefits enhance the economic benefits; and that the economic benefits of agriculture as open space outweigh the economic benefits of other forms of open space.

Social benefits which are not readily quanitifiable range from appreciation of the "aesthetics" of agriculture--whatever meaning one attaches to that--to enjoyment of fresh local produce.

New Jersey's agriculture provides an adequate fresh and diverse local supply of fresh fruits and vegetables and oramentals. It is roughly estimated that 17% of New Jersey's residents disposable income goes for food and that 27% of all food consumed is grown in New Jersey. Table 3 provides a more detailed analysis.

Table 3: Per Cent of New Jersey Grown Consumed Food

Per Cent of Total Food consumed, Grown in New Jersey	Product
88%	Vegetables
27%	Fruit
35%	Eggs
30%	Milk
low-near 10%	Field Crops

Source: New Jersey Crop Reporting Service, 1974

This industry provides a substantial amount of aesthetically pleasing, tax paying, privately maintained open space. The recreational benefits come especially from such activities as

and bicycling for pleasure, New Jersey's second and eight largest recreational activity respectively.

A highly philosophical issue which rages through other highly important issues of resource consumption and waste disposal concerns the present generation's responsibility to future generations. Concerning agriculture, it has been said that development of agricultural lands is an irretrievable commitment of a valuable land resource which can be avoided by wise and efficient development patterns. Extravagant, careless and uneconomic land use today will not only deprive future generations of a valuable historical heritage but seriously limit their opportunity for enjoyment of open space and jeopardize their food and fiber production base.

The impact of agriculture upon the environment is mixed, depending upon such factors as farm and yard management, water consumption practices, and biocide application practices. Agriculture is no boon to the environment! The clearing of land and pasture effectively removes entire ecosystems from existence and dramatically decreases penetration of rainwater into the underlying aquifer while dramatically increasing surface runoff. Both pasture and cropland contribute unexpected amounts of runoff. In comparison to various densities of residential development, pasture and cropland contribute more runoff than one dwelling unit per acre and four dwelling units per

acre respectively (assuming average surface coverage of roads, walkways, driveways, and structures). Local ponding and flooding of roads occurs. Sediment-eroded material deposited in water bodies and carried by running water may be the most extensive water pollutant known.

The application of fertilizers and pesticides, even if properly done, leaches into the groundwater and reaches nearby streams. If excessively applied, fertilizers contaminate ground and surface waters leading to poor water quality and eutrophication. This has implications far beyond the farm: fishkills are often the result of dissolved oxygen deficiencies perpetrated by high phosphate and nitrate levels and decimation of raptor populations has been linked to shell thinning caused by DDT. The consumptive use of water for irrigation purposes lowers ground water reserves and reduces flow in streams. Agriculture is also quite energy intensive--energy is used everywhere from powering farm machinery to drying grain. During times of soil preparation, spraying of pesticides, or harvesting there may be uncomfortable amounts (depending on surrounding land use patterns) of noise, smell, dust, and machinery transport. Soil is a non-renewable resource. Development strips the land of soil, compacts the ground and precludes use of the land for agriculture. Land with a high capability of use for agriculture used for other than agriculture or natural growth (forest or old field) must be considered as gone.

Compared to more intensive uses of the land, however,

agriculture is environmentally attractive. Agriclutural activities cause negligible air pollution. Fields dispersed with hedges and woodlots provide wildlife habitat and forage. Farmed land can serve as buffers between industries or highways and residential or commercial centers.

New Jersey agriculture may be valuable in yet another environmental sense. Application of sewage effluent or sewage sludge as soil conditioners or fertilizers may serve to reduce dependency on petroleum derivatives and accomodate a percentage of human waste materials. Agricultural wastes per se may be usefull converted into livestock and poultry feeds or serve as low-grade fuels.

D. Trade-Offs Between Farm Income and Environmental Controls

There are noticable changes in farm income with restrictions on soil loss, fertilizer use, and land use mixes. These restrictions could affect rural resources and food and fiber production. If public policy mandates the maintenance of environmental quality, large incentives or severe penalties may be necessary to offset consequences of reduced farm income.

Kasal (5) analyzes constraints on three environmental variables: soil loss, fertilizer use, and the mix of land uses. Soil loss restrictions were found to have the least impacts on revenue. When 61 percent of the unconstrained soil loss from contributing acreage was eliminated it was found to cause a revenue decline of 9 percent. When soil loss was reduced by 80 percent revenue declined by 16 percent.

Fertilizer restrictions caused the greatest revenue decline of the three variables and had a negative effect on soil loss. When fertilizer use was restricted to about average levels (60 percent below the income-maximizing level) total net revenue declined by 20 percent and soil loss increased by 27 percent. Further restrictions had an even greater negative effect on revenue.

Restrictions to maximize the diversity of the agricultural landscape caused net revenues to suffer. Soil loss was reduced and fertilizer use decreased.

The combination of restrictions will reduce revenue more than restrictions on a single variable. However, some restrictions are complimentary. The combination of a fertilizer constraint with a restriction on the land use mix, while reducing net revenue and maintaining a high soil loss, increased the land use mix more than a single purpose land use constraint. The reduced fertilizer usage forced a more equal distribution of acres among various types of crops thus increasing diversity.

Environmental objectives are closely related to farm profits. Reductions in net farm income will inevidably accompany increased environmental quality.

APPENDIX A

REGIONAL REPORTS

1. South Shore (Cape May, Atlantic, Burlington)

Agriculture is a relatively large industry within the South Shore Region. Development pressure is compartively small existing predominantly around large developing towns.

Physical Characteristics

Agriculture in the southern portion of the region (Cape May County) is dominate by field crops with some general vegetable. Their fruit and livestock industry is generally low. Cape May, however, is the state's fourth largest producer of hogs and pigs. The northern portion of the region is proportionately larger in production of general vegetables and fruit (speciality crops are common, Atlantic County is the state's largest producer of blueberries). There are very few acres of field crops in the northern area, mostly fresh market production of vegetables.

Technically the South Shore Region is outside of the Pine Barrens (Pines grow 30-40 feet in Atlantic County). Correspondingly the soils are better. Though the area contains a great deal of sandy soils, it is capable of high productivity with additions of fertilizer, lime and water. The large amounts of sandy soil heat up well and are well drained. Lacking the presence of other viable industries agriculture is the second largest industry behind recreation.

Analysis

Development pressure is small in the Shore Region. The largest pressure is in southern Cape May (Lower Township) generally becoming less as one goes north. In the north development pressure exists largely around large developing towns especially East Vineland, Landisville, and around the shore area. Recreation is a predominant cause of development pressures.

2. Delaware Bay (Cumberland and Salem County)

Agriculture is a comparatively large industry with other industries becoming more important than in the South Shore Region. Development pressure is almost non-existent.

Physical Characteristics

Cumberland and Salem Counties differ in type of crops. Cumberland county is dominated by vegetables and field crops with some fruits and berries. With the loss of Seabrook there may be some transfer to fresh market vegetable production and to field crops. Salem County is dominated by dairy and field crops with a large amount of vegetables.

Cumberland County's soils range from sandy to sandy loam with much the same soil conditions as Atlantic County. As is generally the case their is a need for irrigation of the vegetable crops. Since about one-half of Cumberland County's agricultural land is in vegetable production nearly the same amount is irrigated. Agriculture is the largest industry in

the county.

Salem County's soils are a good example of the changes in agriculture products with variations in soil types. Along the Delaware River light sandy soils predominate. The major crops are vegetables, both fresh and produce. In mid-Salem the clay soils support a large dairy industry. The gravely sandy soils of eastern Salem add to the large vegetable market of western Salem County. Other industries (Dupont especially) play a significant role in Salem County's economy. Agriculture is therefore a proportionately smaller industry then in many other southern counties.

Analysis

There has been no loss of farmland in the region. The potential loss is very small as indicated by the lack of development pressure and renting of farmland. The only renting of farmland is some of the Seabrook property. Roughly 4,000 acres is being rented in Cumberland County. There is roughly 15% non-farm ownership in Salem County.

3. Delaware River Water Front (Gloucester, Camden, Burlington, and Mercer Counties)

In comparison to the Delaware Bay and South Shore Regions the Delaware River Water Front Region is somewhat less important an agricultural area. Proximity to urbanized areas has created an increase in speculation and loss of agricultural land to

development.

Physical Characteristics

Both Gloucester and Camden County's agriculture is dominated by high value crops, fruits and vegetables. This represents about one half the cultivated acreage in Gloucester County and 60% in Camden County. Both counties have very few cows, in fact the only significant livestock are hogs and pigs in Gloucester County fed by Philadelphia's garbage. Field crops are relatively unimportant.

Burlington County has a large acreage of field crops as well as vegetables and fruits. It is fifth in the state in milk production and second only to Gloucester County in hog and pig production. Outside of the agricultural belt, in the sandy soils of the pine barrens there are only speciality crops. Burlington County is second in the state in blueberry production.

Soils in the better agricultural parts of the region are light sandy loams and loamy sands. Irrigation is common in areas cultivated for vegetables and fruit, fertilization is heavy throughout the three regions. As mentioned above there are sandy soils in southeastern Burlington County where speciality crops are important.

Other industries generally play a much more important role

in the economy of the region than agriculture. In Gloucester County, for example, the petro-chemical industry is the largest industry. Their is a closer relationship of support industries to agriculture production in other regions. There is a great deal of dependency on direct sales (fresh market) while other regions depend on auctions.

Analysis

Agriculture in the Delaware Water Front Region has long been under tremendous pressure from development. Leasing, buying, selling, and speculation are common in the area. In Burlington County it is estimated that 70% of the agricultural land is owned by speculators. In Camden County about 3,000 acres is owned by farmers. Though a suprising amount (in view of the counties proximity to Philadelphia) of land is still in agriculture, Gloucester County has gone from 90,000 acres in cultivation ten years ago to 75,000 acres at the present time.

APPENDIX B

MANAGEMENT TOOLS

Management tools to implement the alternate policies with respect to Agriculture can encompass a wide range of forms. Statutory authority and pertinent regulations are the most efficacious mechanisms to implement policy, however state proposed guidelines for adoption by local levels of government. Sponsorship of locally initiated legislation or the drafting of appropriate bills by DEP is an alternative approach.

To promote a general program of maintaining farmlands several existing mechanisms and precedents exist at the state level. Within the coastal area, concern for farmland preservation has been established by administrative precedent in the CAFRA permit application of Tranquility Park (CA 75-4-104). This permit decision recognized the need to protect "prime" agricultural land from development. Additional environmental concerns ultimately mandated denial of the project in its present form. Conservation of prime agricultural land has also been formally incorporated as policy in DEP's Interim Land Use and Density Guidelines for the Coastal Area of New Jersey issued May, 1976.

The general social and economic implication of farmland preservation in an area could be coordinated with the Rural Advisory Council (N.J.S.A. 4:1A-1 et seq.). This Council studies labor, taxation, water supply, marketing and other factors peculiar to rural areas.

Halting the conversion of farmland to other uses by regulation does not adequately address the economic rights of the holder of such lands. To promote equity in this conservation policy several mechanisms are available to the state.

Purchase of Development Rights is a concept embodied in Assembly No. 1334, signed into law by the Governor in July, 1976. This law appropriates five (5) million dollars from state funds to purchase the development rights to farmland in selected counties. This demonstration project is a cooperative undertaking between the New Jersey Departments of Agriculture and Environmental Protection.

Development and farmland preservation are not per se incompatible. Certain forms of housing development such as cluster or planned unit developments (P.U.D.) provide economic use of land where housing pressures are heavy. The Planned Unit Development Act as amended by NJSA 90:55D-1 et seq. authorized municipalities pursuant to a delegation of police power to the municipalities to adopt P.U.D. ordinances. Surface water use designations pursuant to N.J.A.C. 7:9-4.1 may be adjusted to encourage farming where development of the same area with or without adequate wastewater treatment would result in equal or greater water quality degradation. Uncontrolled uses of pesticides present a more direct threat to water quality. Pesticides are regulated by N.J.S.A. 13: 1F-1 et seq., N.J.A.C. 7:30-1.

Existing mechanisms can aid in slowing the conversion of farmland to developed areas. The policy within the coastal zone of reducing environmental degradation and encouraging a diversity of agricultural products must carefully considered on an area specific basis. Increasing the economic incentives to own farmland through the purchase of development rights process, and expanding the positive provisions of the Farmland Assessment Act, are possibilities.

Agriculture as an activity results in a certain amount of

environmental degradation. The use of fertilizers and pesticides can result in the contamination of water bodies from runoff. Policy which encourages intensive use of farmland must be made with regard to these runoff effects. An adjustment of water quality may result in larger numbers of smaller farms which still produce significant quantities of food but do not have the intensive environmental impacts of "agri-business" operations.

The Farmland Assessment Act N.J.S.A. 54:4-21.3 could be amended to provide additional economic incentives for holders of prime agricultural land to retain their land.

Senate No. 1498, introduced May 24, 1976 would restrict the preferential tax rate of forested land not appurtenant to larger tracts of agricultural land used for established agricultural uses.

The Farmland Assessment Act has slowed the egress of land from agriculture and, in some instances, brought abandoned farmland back into production, but it is a stop-gap measure at best. The Act does not discourage developers from building on prime open farmland..."[6] The Farmland Assessment Act can at best be said to benefit some of those who wish to remain farmers or have their land farmed, but it does not guarantee preservation of farmland per se. Nor does it treat all farmers equally. As a stop-gap measure the Act was desirable, but can it serve the long-term interests of the residents of the State?

The heart of the Act is the preferential assessment provision which makes possible the levying of taxes based on the income-producing capacities of the land, not on market value. Since the Act affects the municipal tax base, the effect varies according to the land use characteristics of the municipality. Where there is no agriculture there is no impact. Where there is a good mix of farmland and urbanization, the farm owner benefits of the expense of the non-farm owning population. Where there is predominantly agriculture, farm owners benefit little while the non-farm population is saddled by a significantly higher tax charge.

The previous paragraph requires qualification. Actually, urban municipalities can be impacted if the taxes collected to operate county government must be increased because of a shrinking county tax base caused by preferential assessment. Also, school aid formulas which allocate funds to municipalities will impact highly urbanized counties.

Aside from shifted tax burdens, the Act has tremendous implications precisely for those areas where it is perhaps most effective, in the light agriculture developing suburban areas. Farmland in these areas is under the greatest pressure for conversion and its market value is in excess of its agricultural production potential. The farm owner, serious about farming, benefits enormously, as was the Act's intent. The farm owner holding his land for development, however, also benefits, as taxes saved, farming income earned, and profits realized from the sale of his value-ripened land more than compensate for the meager roll-back penalty of the Act.

Defects in the Act arise from difficulty in defining both farmer and farm and in the basic premise of preferential tax assessment. Current proposals to do away with farmland assessment in favor of an approach designed to preserve farmland include the Blueprint Commission's "Agricultural Open Space Preserve" concept and the Transfer of Development Rights concept as put forth by B. Budd Chavooshian and others.

APPENDIX C

TABLES AND FIGURES

Table 1: Estimates, By County, Of The Acreages Of "Prime" Agricultural Lands In New Jersey By Specified Categories[1]

County	Total County Area	Open Class I & II	Open Class III	% Open Class I,II,III	Acres Wooded Class I,II,III[2]	Special	Total	% "Prime" Agriculture
Atlantic	362,860	37,540	-0-	10	94,300	4,600	136,440	38
Bergen	150,124	No estimate made						
Burlington	524,352	85,040	32,820	22	6,230	24,310	148,400	28
Camden	142,182	22,350	2,570	18	6,680	180	31,780	22
Cape May	169,817	23,030	1,260	14	65,200	-0-	89,490	53
Cumberland	321,536	81,600	32,060	35	113,510	-0-	227,170	71
Essex	81,561	No estimate made						
Gloucester	210,304	60,230	1,340	29	24,410	210	86,190	41
Hudson	28,224	No estimate made						
Mercer	144,640	27,060	44,520	49	-0-	-0-	71,580	49
Middlesex	197,625	28,830	14,070	22	-0-	-0-	42,900	22
Monmouth	305,286	25,650	17,450	14	16,830	-0-	59,930	20
Ocean	410,240	2,730	2,400	1.3	340	1,660	7,130	1.7
Salem	219,532	83,650	39,530	56	24,830	-0-	148,010	67
Somerset	195,264	46,330	33,530	41	-0-	-0-	79,860	41
Union	66,169	No estimate made						

[1]Estimates for counties with "Prime" lands which are based on Soil Conservation Service soil capability classifications I, II, & III plus special land which includes areas such as those devoted to the production of cranberries and blueberries and areas of muckland.

Estimates are based on county maps delineated on a generalized bases excluding developed land and using a minimum size area of 640 acres.

[2]A zero indicates that Class I,II & III wooded areas or special areas for the county were either nonexistent or did not generally meet the minimum criteria.

Source: State Soil Conservation Committee, 1972.

TABLE 2: Rank of Selected Items

		Field Crops	Vegetables Harvested	Fruit & Berries	Livestock & Products	Nurseries
Cape May	1					
	2					
	3					
	4				hogs & pigs	
	5					
Atlantic	1	sweet potatoes		blueberry		
	2		lettuce	strawberry & peach		
	3		cabbage			
	4		peppers			
	5	potatoes	tomatoes			
Cumber-land	1		lettuce	strawberry		
			onions, dry	acreage		
	2		cabbage		number of	
	3	potatoes sweet potatoes	asparagus			number certified nurseries

TABLE 2 : Rank of Selected Items (cont.)

		Field Crops	Vegetables Harvested	Fruit & Berries	Livestock & Products	Nurseries
Cumber-land	4			peach pro-duction		nursery stock acreage
	5	Wheat for grain		Apples, com' production		
Salem	1	Barley for grain	peppers tomatoes			
	2		aspargus onions, dry*			
	3					
	4	Soybeans for beans potatoes			number of layers milk production number of cattle	
	5	corn for grain all hay				nursery stock acreage

TABLE 2: Rank of Selected Items (cont.)

		Field Crops	Vegetables Harvested	Fruit & Berries	Livestock & Products	Nurseries
Gloucester	1		aspargus	apples, com'l prod. peach production	number hogs and pigs	
	2	sweet potatoes	peppers tomatoes			
	3		lettuce* sweet corn	strawberry acreage*		nursery stock acreage
	4					number certified nurseries
	5		cabbage			
Camden	1					
	2					
	3			apples, com'l prod. strawberry acreage*		
	4	sweet potatoe	sweet corn			
	5					

TABLE 2: Rank of Selected Items (cont.)

		Field Crops	Vegetables Harvested	Fruit & Berries	Livestock & Products	Nurseries
Mercer	1	Wheat for grain				
	2		soybeans for beans			
	3			strawberry acreage*		
	4					
	5	Barley for grain			number sheep & lambs	
Burling-ton	1		sweet corn			
	2		Barley for grain	Apples, com'l prod.*, blue-berry prod., strawberry acreage	number hogs & pigs	
	3	corn for grain, soy-beans for beans		peach prod.		
	4	all hay	cabbage tomatoes			
	5				milk prod, number all cattle	

*with other counties
Source: New Jersey Crop Reporting Service, 1976

Table 3: CAFRA COUNTY PROFILES FOR SELECT AGRICULTURAL COMMODITIES

ATLANTIC COUNTY

Peaches: 2 / Oe
Blueberries: 1 / +
Strawberries: 3 / --
Cabbage: 3 / Oe
Lettuce: 2 / Oe

BURLINGTON

Corn for Grain: 3 / 0
Soybeans for Beans: 3 / +
Apples: 2 / 0
Blueberries: 2 / Oe
Strawberries: 2 / 0
Sweet Corn: 1 / -

CAPE MAY

None

CUMBERLAND

Potatoes: 3 / -e
Strawberries: 1 / -e
Asparagus: 3 / - (fresh market) --(process market)

Cabbage: 2 / +
Lettuce: 1 / -
Peppers: 3 / -
Tomatoes: 3 / -(fresh market) -e(process market)
Layers: 2 / -

MIDDLESEXX

Potatoes: 1 / -

MONMOUTH

Soybeans: 1 / +
Potatoes: 2 / -
Apples: 3 / 0
Cabbage: 1 / +e
Sweet Corn: 2 / -
Layers: 3 / -

OCEAN

None

SALEM

Asparagus: 2 / -
Peppers: 1 / +
Tomatoes: 1 / Oe
Cattle: 3 / 0

Source: Derived from New Jersey Agriculture Statistics, New Jersey Crop Reporting Service, 1961-1975.

NOTES ON TABLE 3

How to read the entries:

Peaches: 2 / 0e

- 0e → Harvest (or Production) Trends
  - -- heavily declining harvest
  - - declining harvest
  - 0 stable
  - + increasing harvest
  - ++ greatly increasing harvest
  - e: indicates erratic trend
- 2 → Rank among New Jersey Counties

Selected Agricultural Commodities are based on Table NC 6 and a harvest (or production) quantity sufficient to rank the respective county in the top three. The categories of decrease, stable, and increase are subjectively applied to the data. The table deals with the counties which fall in the top three. Again, a better criteria is available which recognizes a threshold value of production or harvest which is a function of total production or harvest and the number of counties having "significant" production. For example, given the figures for county A:1000 units, B: 800 units; C:5 units, you instinctively believe that only counties A, and B are important, not counties A, B, C as the top three criteria suggest. Also, say you have the following distribution: A:200 units, B:190 units, C:185 units, D:180 units. Obviously all four counties A,B,C, D should be listed as major producers, not just the top three. Each of these situations exist.

Table 4

CASH RECEIPTS FROM FARMING, BY STATES, 1974

STATE	FARM MARKETINGS		
	LIVESTOCK AND PRODUCTS	CROPS	TOTAL
	1,000 DOL.	1,000 DOL.	1,000 DOL.
ALABAMA	678,399	561,283	1,239,682
ALASKA	3,657	2,682	6,339
ARIZONA	585,851	624,408	1,210,259
ARKANSAS	825,123	1,297,483	2,122,606
CALIFORNIA	2,786,021	5,829,819	8,615,840
COLORADO	1,409,570	725,268	2,134,838
CONNECTICUT	126,618	84,029	210,647
DELAWARE	158,878	107,555	266,433
FLORIDA	543,412	1,610,328	2,153,740
GEORGIA	1,022,792	1,063,107	2,085,899
HAWAII	57,683	573,696	631,379
IDAHO	411,265	1,051,254	1,462,519
ILLINOIS	1,798,704	3,894,500	5,693,204
INDIANA	1,168,538	1,927,874	3,096,412
IOWA	3,797,821	3,635,989	7,433,810
KANSAS	1,845,011	2,107,553	3,952,564
KENTUCKY	583,207	900,471	1,483,678
LOUISIANA	334,775	975,750	1,310,525
MAINE	227,736	190,425	418,161
MARYLAND	369,857	258,428	628,285
MASSACHUSETTS	105,992	87,970	193,962
MICHIGAN	687,833	966,144	1,653,977
MINNESOTA	1,952,296	2,493,445	4,445,741
MISSISSIPPI	601,607	910,041	1,511,648
MISSOURI	1,464,023	1,204,070	2,668,093
MONTANA	433,138	754,906	1,188,044
NEBRASKA	2,225,068	1,864,465	4,089,533
NEVADA	101,144	35,854	136,998
NEW HAMPSHIRE	52,128	19,057	71,185
NEW JERSEY	113,234	226,653	339,887
NEW MEXICO	411,651	169,875	581,526
NEW YORK	1,031,233	466,621	1,497,854
NORTH CAROLINA	917,796	1,655,192	2,572,988
NORTH DAKOTA	448,471	2,041,130	2,489,601
OHIO	967,922	1,571,346	2,539,268
OKLAHOMA	1,116,503	797,828	1,914,331
OREGON	327,861	784,107	1,111,968
PENNSYLVANIA	1,091,688	468,582	1,560,270
RHODE ISLAND	11,890	11,063	22,953
SOUTH CAROLINA	257,417	601,333	858,750
SOUTH DAKOTA	1,287,753	835,032	2,122,785
TENNESSEE	458,821	557,329	1,016,150
TEXAS	2,971,088	2,703,703	5,674,791
UTAH	219,670	100,521	320,191
VERMONT	203,504	17,087	220,591
VIRGINIA	453,377	497,492	950,869
WASHINGTON	449,207	1,327,112	1,776,319
WEST VIRGINIA	101,160	42,212	143,372
WISCONSIN	1,943,156	520,903	2,464,059
WYOMING	235,470	117,819	353,289
UNITED STATES	41,377,019	51,270,794	92,647,813

Source: Farm Income Statistics, Statistical Bulletin No.557, July 1976, Economic Research Service, U.S. Department of Agriculture.

Table 5

NEW JERSEY PRODUCED CROPS, THEIR PRODUCTION, VALUE OF PRODUCTION, AND LAND PRODUCTIVITY

	PRODUCTION		PRODUCTIVITY			VALUE OF PRODUCTION	
	NATIONAL RANKING		YIELD PER ACRE				
	Production	Rank	New Jersey	United States	Rank	Value of Production	Percent of Average U.S. Production
Field Crop [1]							
Corn for grain	7,743	28	89.0	71.3	1.25	23,229*	0.17
Wheat	2,214	36	41.0	27.4	1.50	8,303	0.12
Oats	343	39	49.0	46.6	1.05	549	0.06
Barley	988	23	52.0	37.2	1.40	1,976	0.24
Rye	243	17	27.0	21.5	1.26	571	1.20
Soybeans for beans	2,088	28	29.0	23.5	1.23	14,094*	0.17
All hay	271	43	2.28	2.10	1.09	14,905	0.26
Corn for silage	592	30	16.0	10.4	1.54	8,466	--
Potatoes, all seasons	2,430	18	270	246	1.10	10,206*	0.69
Sweet potatoes	216	12	120	112	1.07	2,527	2.38
Fruit Crop [2]							
Apples	120	11	--	--	--	10,120*	1.97
Peaches	91,000	4*	--	--	--	13,104*	4.79*
Grapes	1,000	11	--	--	--	245	0.04
Blueberries	2,400	2*	--	--	--	9,360	--
Cranberries	250	3*	78.1	96.8	0.81	3,425	10.78*
Strawberries	53	9*	53.0	134.5	0.39	2,003	1.31
Vegetables [3]							
Asparagus	88	5*	12.9	23.2	0.56	3,027	4.08
Snap beans, spring fresh	(39)	--	55.7	34.4	1.62	(542)	--
summer fresh	(145)	--	33.0	39.1	0.84	(2,262)	--
fall fresh	(20)	--	40.0	33.2	1.21	(826)	--
all season, fresh	204	5*	--	--	--	3,630	5.33*

* See notes at end of table.

Table 5 (cont'd)

	PRODUCTION		PRODUCTIVITY			VALUE OF PRODUCTION	
	NATIONAL RANKING		YIELD PER ACRE				
	Production	Rank	New Jersey	United States	Rank	Value of Production	Percent of Average U.S. Production
Cabbage, spring	(184)	--	230	187	1.23	(1,251)	--
summer	(480)	--	200	248	0.81	(2,083)	--
fall	(270)	--	180	264	0.68	(1,331)	--
all seasons	934	7*	--	--	--	4,665	5.07*
Sweet corn, summer fresh	774	--	73.0	66.9	1.09	6,757	--
all seasons fresh	774	5*	--	--	--	6,757	6.67*
Cucumbers, summer fresh	210	--	150	105	1.43	2,121	--
all seasons fresh	210	8*	--	--	--	2,121	4.61*
Eggplant, all seasons	182	2*	--	--	--	2,020	29.07*
Escarole, all seasons	221	2*	--	--	--	2,769	22.80*
Lettuce, spring	(272)	--	160	259	0.62	(2,747)	--
summer	(111)	--	185	254	0.73	(763)	--
fall	(160)	--	200	198	1.01	(1,728)	--
all seasons	543	8*	--	--	--	5,238	1.49
Onions, non-storage, summer	(153)	--	170	276	0.62	(1,340)	--
all seasons, storage and non-storage	153	17	--	--	--	1,340	1.04
Peppers, summer	(409)	--	66.0	80.9	0.82	(4,826)	--
fall	(80)	--	80.0	123	0.65	(708)	--
all seasons	489	3*	--	--	--	5,534	7.90*
Spinach, spring fresh	(42)	--	77.0	65.8	1.17	(613)	--
fall fresh	(25)	--	70.0	56.9	1.23	(498)	--
all seasons, fresh & process	67	4*	--	--	--	1,111	5.81*
Tomatoes, summer fresh	(576)	--	90.0	140	0.64	(9,446)	--
all seasons, fresh & process	5,207[4]	3*	--	--	--	26,696*	2.34

Source: New Jersey Crop Reporting Service, 1961-1975

NOTES ON TABLE 5

1. Production is expressed in 1,000 bushels and value is expressed in 1,000 dollars for all field crops except "all hay" and "corn for silage," expressed in 1,000 tons (production) and "potatoes" and "sweet potatoes", expressed in 1,000 cwt (production).

2. Production and value of production of fruit crops is expressed in units according to this schedule: apples and peaches, million pounds/1,000 dollars; grapes, tons/1,000 dollars; blueberries, 1,000 trays/1,000 dollars; cranberries, 1,000 barrels/1,000 dollars; strawberries, 1,000 cwt/1,000 dollars.

3. Production is expressed in 1,000 cwt and value of production is expressed in 1,000 dollars for all vegetables.

4. Production for fresh and process derived from approximate ratio of tons processed to 1,000 cwt fresh.

General Notes

-- "Percent of Average U.S. Value of Production" derived based on value or production excluding Alaska and Hawaii.

-- An asterisk next to a value indicates that the crop qualifies as a major New Jersey farm commodity by virtue of that value. See text for description and Table 7 for summary of major New Jersey farm commodities.

Table 6

NEW JERSEY PRODUCED LIVESTOCK, LIVESTOCK PRODUCTS, AND DAIRY PRODUCTS, AND THEIR PRODUCTION AND MARKETINGS

LIVESTOCK AND DAIRY [1]	*INVENTORY*		*M A R K E T I N G*		
	Number	Rank	Number	Gross Income	Percent of Average U.S. Gross Income
Cattle and Calves	124	44	60	13,676*	0.07
Hogs and pigs	95	35	118	9,003	0.13
Sheep and lambs	8.5	36	3.6	110	0.03
Wool/sheep and lambs shorn	--	--	7.7	23[1]	0.03
Milk cows	50	39	--	--	--
Dairy products, milk sold to plants	--	--	520	46,020	--
Milk sold to consumers	--	--	9,302	3,386	--
All dairy products sold	--	--	--	49,406*	0.53
Chickens, number on farms	3,470	28	--	--	--
Produced, no broilers	--	--	2,000	1,125	0.92
Produced, broilers	--	--	500	1,189	0.05
Turkey production	--	--	84	756	0.11
Eggs, number of hens & pullets	3,375	26	--	--	--
production	--	--	736	36,678*	1.25

* See notes, end of table.

Sources: New Jersey Crop Reporting Service, 1976
U.S. Department of Commerce, January, 1975

NOTES ON TABLE 6

1. Inventory is expressed in 1,000 head and gross income expressed in 1,000 dollars for all livestock and dairy categories except "dairy products, milk sold to plants," expressed in million pounds/1,000 dollars respectively, "dairy products, milk sold to consumers, expressed in 1,000 quarts/1,000 dollars respectively, and "eggs, production," expressed in millions/1,000 dollars.

General Notes

-- "Percent of Average U.S. Gross Income" derived based on value of production excluding Alaska and Hawaii.

-- An asterisk next to a value indicates that the livestock or dairy type qualifies as a major New Jersey farm commodity by virtue of that value. See text for description and table 7 for summary of major New Jersey farm commodities.

Table 7

MAJOR FARM COMMODITIES[1]

FARM COMMODITY	PRODUCTION U.S. Rank	PRODUCTION Value	PRODUCTION Ratio of Value N.J. to Value U.S.
Field Crops			
Corn for grain	--	23,229	--
Soybeans for beans	--	14,094	--
All hay	--	14,905	--
Potatoes	--	10,206	--
Fruit Crops			
Apples	--	10,120	--
Peaches	4	13,104	4.79
Blueberries	2	--	--
Cranberries	3	--	10.78
Strawberries	9	--	--
Vegetables			
Asparagus	5	--	--
Snap beans	5	--	5.33
Cabbage	7	--	5.07
Sweet corn	5	--	6.67
Cucumbers	8	--	4.61
Eggplant	2	--	29.07
Escarole	2	--	22.80
Lettuce	8	--	--
Peppers	3	--	7.90
Spinach	4	--	5.81
Tomatoes	3	26,696	--
Livestock and Dairy			
Cattle and calves	--	13,676	--
Dairy products	--	49,406	--
Eggs	--	36,678	--

[1] A definition of major farm commodities is provided in the text. The values entered in this table are only those which merit inclusion of the farm commodity on this list. Refer to tables 5 and 6 for values of blank entries.

Sources: New Jersey Crop Reporting Service, 1976
U.S. Department of Agriculture, 1975
U.S. Department of Commerce, 1975

Table 8

GROSS STATE PRODUCT BY INDUSTRY
(Constant 1958 Dollars)1/

Date	Construction	Trade	Finance	Transportation	Government	Manufacturing	Service	Agriculture	GSP	Agriculture As % of GSP
1973	1,683	5,294	3,777	2,712	2,786	12,478	3,447	92.0	32,271	0.3
1972	1,524	5,190	3,588	2,729	2,675	11,643	3,423	111.0	30,885	0.4
1971	1,364	4,838	3,438	2,664	2,597	10,980	3,322	139.1	29,342	0.5
1970	1,397	4,477	3,345	2,569	2,561	11,051	3,282	145.9	28,828	0.5
1969	1,341	4,431	3,303	2,567	2,497	11,532	3,175	147.7	28,994	0.5
1968	1,323	4,371	3,232	2,525	2,449	11,260	3,101	159.4	28,420	0.6
1967	1,260	4,177	3,059	2,402	2,314	10,769	2,926	161.5	27,068	0.6
1966	1,207	3,961	3,019	2,341	2,167	10,685	2,783	163.7	26,326	0.6
1965	1,170	3,709	2,875	2,212	2,016	9,851	2,609	183.5	24,624	0.7
1964	1,093	3,547	2,736	2,080	1,929	8,911	2,459	161.5	22,917	0.7
1963	1,016	3,338	2,613	2,018	1,869	8,448	2,338	169.1	21,808	0.8
1962	983	3,196	2,499	1,945	1,764	8,130	2,245	181.5	20,944	0.9
1961	925	2,984	2,388	1,841	1,700	7,455	2,065	200.9	19,559	1.0
1960	856	2,939	2,346	1,727	1,603	7,316	1,948	214.5	18,949	1.1
1959	835	2,868	2,293	1,675	1,562	7,074	1,871	193.4	18,372	1.1
1958	772	2,678	2,229	1,622	1,517	6,378	1,734	206.1	17,136	1.2
1957	836	2,653	2,156	1,581	1,431	6,860	1,756	208.8	17,483	1.2
1956	853	2,521	1,987	1,522	1,372	6,868	1,648	260.0	17,031	1.5
1955	822	2,466	1,935	1,445	1,387	6,683	1,554	212.7	16,505	1.3
1954	788	2,298	1,868	1,347	1,397	5,977	1,424	208.6	15,308	1.4
1953	690	2,209	1,723	1,353	1,418	6,172	1,404	234.7	15,204	1.5
1952	724	2,169	1,634	1,327	1,311	5,748	1,376	185.4	14,475	1.3
1951	752	2,101	1,585	1,290	1,150	5,523	1,360	185.0	13,946	1.3
1950	643	2,037	1,508	1,181	977	5,006	1,293	182.8	12,828	1.4

1/ Figures expressed in million dollars.
Source: Mr. Tony Costa, Public Service Electric and Gas, 1976

Table 9

GROSS NATIONAL PRODUCT AND GROSS FARM PRODUCT
(Constant 1958 Dollars)

Year (a)	Agriculture As Percentage of GNP (b)	Agriculture (Billion $) (c)	Gross National Product (Billion Dollars) (d)
1973	3.4	28.9	839.2
1972	3.5	27.4	792.5
1971	3.7	27.7	746.3
1970	3.6	26.2	722.5
1969	3.5	25.4	725.6
1968	3.5	24.8	706.6
1967	3.7	25.2	675.2
1966	3.6	23.7	658.1
1965	4.0	25.0	617.8
1964	4.1	23.6	581.1
1963	4.4	24.0	551.0
1962	4.4	23.3	529.8
1961	4.7	23.4	497.2
1960	4.7	23.1	487.7
1959	4.7	22.3	475.9
1958	4.9	22.0	447.3
1957	4.8	21.5	452.5
1956	4.9	22.0	446.1
1955	5.0	22.1	438.0
1954	5.3	21.6	407.0
1953	5.1	21.2	412.8
1952	5.1	20.2	395.1
1951	5.1	19.5	383.4
1950	5.7	20.4	355.3

Source for 1973-1971: U.S. Department of Commerce, Bureau of Census. Statistical Abstract of the United States. (Washington, D.C.: Government Printing Office) 1975, p. 382.

Source for 1970-1950: U.S. Department of Commerce, Bureau of the Census. Historical Statistics of the United States: Colonial Times to 1970 (Washington D.C.: Government Printing Office) 1975, p. 233.

Table 10

AGRICULTURE AS A PERCENTAGE OF GROSS PRODUCT:
NEW JERSEY AND UNITED STATES

Date	Gross Farm Product As Percentage Of Gross Product		Five Year Averages of Columns (b) & (c) and Percent Change From Previous Five Year Average	
	New Jersey	United States	New Jersey	United States
(a)	(b)	(c)	(d)	(e)
1973	0.3	3.4		
1972	0.4	3.5		
1971	0.5	3.7	0.44(-31.3%)	3.54(-6.3%)
1970	0.5	3.6		
1969	0.5	3.5		
1968	0.6	3.5		
1967	0.6	3.7		
1966	0.6	3.6	0.64(-34.7%)	3.78(-17.5%)
1965	0.7	4.0		
1964	0.7	4.1		
1963	0.8	4.4		
1962	0.9	4.4		
1961	1.0	4.7	0.98(-25.8%)	4.58(-8.0%)
1960	1.1	4.7		
1959	1.1	4.7		
1958	1.2	4.9		
1957	1.2	4.8		
1956	1.5	4.9	1.32(-4.0%)	4.98(-5.1%)
1955	1.3	5.0		
1954	1.4	5.3		
1953	1.5	5.1		
1952	1.3	5.1		
1951	1.3	5.1	1.375[1]	5.25[1]
1950	1.4	5.7		

[1] Four year averages.

Table 11

AGRICULTURE RELATED AND DEPENDENT INDUSTRIES

Percent Dependent	Title	VALUE (MILLION DOLLARS) Related 1972	Related 1967	Dependent 1972	Dependent 1967
	MANUFACTURERS 1/				
27	First Processors	224.0	158.9	60.5	42.9
	Preserved Fruits and Vegetables	190.9	158.9		
	Canned and Cured Seafoods	4/	NA		
	Fresh or Frozen Packaged Fish	4/	NA		
	Miscellaneous	33.1	NA		
10	Milk Plants	49.3	55.6	4.9	5.6
	Fluid Milk	49.3	55.6		
10	Egg Processing	10.8	NA	1.1	NA
	Poultry and Egg Processing	4/	NA		
	Miscellaneous	10.8	NA		
	TOTAL INDUSTRIES	284.1	214.5	66.5	48.5
	TOTAL SECTOR	16,409.9	12,738.2	16,406.9	12,738.2
	PERCENT OF SECTOR	1.7%	1.7%	0.4%	0.4%
	WHOLESALE TRADE 2/				
65	Brokers, etc.	66.6	46.5	43.3	30.2
	Dairy Products	25.1	19.2		
	Poultry and Poultry Products	10.5	6.0		
	Fish and Seafoods	3.4	1.9		
	Fresh Fruits and Vegetables	12.2	9.5		
	Grain	0.4	1.6 5/		
	Livestock	0.5	5/		
	Farm Product Raw Materials NEC	1.8	5/		
	Farm Machinery and Equipment	4.4	4.2		
	Farm Supplies	8.3	4.1		

Table 11 (cont'd)

AGRICULTURE RELATED AND DEPENDENT INDUSTRIES

Percent Dependent	Title	VALUE (MILLION DOLLARS)			
		Related		Dependent	
		1972	1967	1972	1967
	TOTAL WHOLESALERS	66.6	46.5	43.3	30.2
	TOTAL RETAIL AND WHOLESALE SECTOR	3,753.0	2,279.4	3,753.0	2,279.4
	PERCENT OF SECTOR	1.8%	2.0%	1.2%	1.3%
	SERVICES 3/				

1/ Value expressed as "value added"
2/ Value expressed as "payrolls" using 1967 classifications
3/ Agricultural services are a negligible component of the Service sector.
4/ Withheld due to disclosure rules--reported under Miscellaneous.
5/ Grain, livestock, and farm products raw materials grouped together and reported under grain for 1967.

Source: Charles E. Lambert Associates, 1968

TABLE 12

BROADLY RELATED INDUSTRIAL GROUPS

INDUSTRY GROUP TITLE	VALUE (million $) 1972	1967
MANUFACTURERS 1/		
Food and Kindred Products	1,513.0	1,256.5
TOTAL GROUP	1,513.0	1,256.5
TOTAL SECTOR	16,406.9	12,738.2
PERCENT OF SECTOR	9.2%	9.9%
WHOLESALE TRADE 2/		
Groceries and Related Products	213.1	126.7
Farm Product Raw Material	2.6	2.0
Farm Machinery and Equipment	4.4	4.2
Farm Supplies	8.3	4.1
TOTAL GROUP	228.4	137.0
TOTAL SECTOR	3,753.0	2,279.4
PERCENT OF SECTOR	6.1%	6.0%

1/ & 2/ See notes for table 11.

Sources: Charles E. Lambert Associates, 1968
U.S. Department of Commerce, 1972

TABLE 13

REVISED GROSS AGRICULTURAL PRODUCT

INCLUDING DEPENDENT INDUSTRIES:

1967, 1972

YEAR AND SECTOR	ESTIMATES (million 1958 $) LOW	MOST LIKELY LOW	MOST LIKELY HIGH	HIGH
1972				
Manufacturing	0	46.6	197.9	1,071.2
Trade	0	41.1	61.6	208.8
Farm	111.0	111.0	111.0	111.0
REVISED GROSS FARM PRODUCT	111.0	198.7	370.5	1,391.0
(PERCENT OF GSP = 30,885)	0.4%	0.6%	1.2%	4.5%
1967				
Manufacturing	0	43.1	183.1	1,066.1
Trade	0	38.0	58.5	175.6
Farm	161.5	161.5	161.5	161.5
REVISED GROSS FARM PRODUCT	161.5	242.6	403.1	1,403.2
(PERCENT OF GSP = 27,068)	0.6%	0.9%	1.5%	5.2%

Sources: Charles E. Lambert Associates, 1968
U.S. Department of Commerce, 1972

TABLE 14

Farm Production: Indexes of total farm output and gross production of livestock and crops, by enterprise groups, Northeast, 1950-72
(1967 = 100)

Year	Farm output	Livestock and livestock products 1/				Crops									
		All 2/	Meat animals 3/	Dairy products 4/	Poultry & eggs 5/	All 6/	Feed grains 7/	Hay and forage 8/	Food grains 9/	Vegetables 10/	Fruits and nuts 11/	Sugar crops 12/	Cotton	Tobacco	Oil crops 13/
1950	90	90	119	88	85	97	66	89	108	115	107	160	---	165	28
1951	91	92	126	87	89	95	68	94	106	101	102	136	---	159	29
1952	90	94	133	88	89	92	68	90	113	101	80	122	---	134	33
1953	93	97	134	92	92	94	66	89	120	108	91	89	---	139	41
1954	93	98	128	93	93	93	70	89	105	99	102	130	---	154	48
1955	92	99	131	97	91	90	66	87	96	97	106	126	---	130	59
1956	95	100	119	98	98	94	77	86	92	111	89	117	---	131	88
1957	91	99	117	96	97	86	59	84	80	101	94	135	---	120	63
1958	97	100	114	97	99	97	80	93	93	107	113	102	---	118	87
1959	94	99	115	97	96	92	76	89	78	97	112	83	---	124	85
1960	97	99	114	101	93	96	80	94	84	105	101	89	---	128	100
1961	98	101	113	103	92	98	78	96	83	106	113	117	---	130	106
1962	93	101	112	104	92	88	67	79	69	107	108	109	---	142	92
1963	95	102	110	105	95	89	67	90	79	99	99	87	---	126	75
1964	94	103	108	105	96	89	71	84	81	96	115	117	---	129	57
1965	97	102	102	105	98	92	79	86	76	101	114	117	---	132	95
1966	92	101	100	102	100	86	56	92	79	94	98	128	---	111	53
1967	100	100	100	100	100	100	100	100	100	100	100	100	---	100	100
1968	94	98	98	98	98	91	79	94	76	96	96	107	---	99	92
1969	97	101	106	99	102	94	93	97	72	89	106	123	---	91	126
1970	99	102	104	99	105	97	98	101	64	91	112	91	---	89	100
1971	98	102	104	100	104	95	97	100	58	87	124	67	---	76	125
1972 14	89	101	103	98	105	79	80	86	55	70	89	83	---	63	121

1/ Horses and mules excluded. 2/ Includes clipped wool, honey, and beeswax. These items are not included in the separate groups of livestock and livestock products shown. 3/ Cattle and calves, sheep and lambs, and hogs. 4/ Butter, butterfat, wholesale milk, retail milk, and milk consumed on farms. 5/ Chicken eggs, commercial broilers, chickens, and turkeys. 6/ Includes farm gardens; hay seeds, pasture seeds, and cover-crop seeds; and some miscellaneous crop production not included in separate groups of crops shown. 7/ Corn for grain, oats, and barley. 8/ All hay and corn silage. 9/ All wheat, rye, buckwheat. 10/ Potatoes, sweetpotatoes, dry edible beans, truck crops for processing, and truck crops for fresh market. 11/ Fruits, berries, and tree nuts. 12/ Maple sirup. 13/ Soybeans. 14/ Preliminary.

Note: The 1971 and 1972 indexes reflect census revisions, years prior to 1971 are subject to change after revised data have been incorporated.

Source: U.S. Department of Agriculture, 1972

TABLE 15

INPUTS: INDEXES OF TOTAL FARM INPUT AND MAJOR INPUT GROUPS, 1939-72, NORTHEAST REGION
(1967 = 100) 1/

YEAR	TOTAL INPUT			FARM LABOR	FARM REAL ESTATE 4/	MECHANICAL POWER AND MACHINERY	FERTILIZER AND LIMING MATERIALS	FEED, SEED, & LIVESTOCK PURCHASES 5/	TAXES AND INTEREST	MISCEL-LANEOUS
	ALL	NON-PURCHASED 2/	PURCHASED 3/							
1939	131	208	92	307	181	57	41	68	112	68
1940	133	210	94	309	189	60	44	70	110	69
1941	134	208	96	302	185	62	50	76	108	73
1942	136	214	96	306	173	71	53	78	104	69
1943	135	212	96	299	165	73	56	82	107	69
1944	137	214	97	299	162	76	65	81	110	70
1945	135	206	98	284	151	77	66	88	114	74
1946	132	196	99	271	159	75	69	85	114	77
1947	129	185	99	247	153	83	70	91	110	72
1948	129	184	101	236	147	95	68	96	108	76
1949	132	183	104	229	151	100	71	105	107	77
1950	133	184	105	224	152	103	71	108	104	84
1951	132	182	105	213	151	107	71	112	101	85
1952	130	176	105	204	145	109	75	112	103	81
1953	127	173	103	199	141	107	78	108	106	78
1954	125	169	102	192	144	105	75	107	105	81
1955	123	163	101	184	143	104	80	102	105	84
1956	120	156	101	176	135	104	76	102	104	94
1957	116	148	99	164	135	103	78	97	103	91
1958	115	141	100	157	128	102	79	99	100	98
1959	111	135	98	148	125	100	85	94	101	100
1960	109	126	100	143	120	99	83	93	102	99
1961	107	122	98	138	116	95	83	94	103	103
1962	106	117	99	129	113	95	85	97	104	101
1963	104	110	100	122	110	93	92	97	101	101
1964	102	107	99	117	107	93	94	96	100	97
1965	101	105	99	111	106	95	95	99	99	97
1966	101	102	100	104	101	98	102	103	98	96
1967	100	100	100	100	100	100	100	100	100	100
1968	99	99	100	94	98	101	100	101	104	103
1969	98	96	99	90	96	100	98	99	106	108
1970	97	94	99	86	98	99	99	98	106	106
1971	95	91	98	81	99	100	108	92	105	107
1972 6/	96	96	96	73	130	98	98	92	106	110

1/ Revisions to Census of Agriculture through the 1967 base year have resulted in upward revisions in non-purchased, real estate, and power and machinery groups for the earlier years.
2/ Includes operator and unpaid family labor, and operator-owned real estate and other equity capital inputs.
3/ Includes all inputs other than non-purchased inputs.
4/ Land in government programs is included in the real estate input group although much of this land contributed little to agricultural production.
5/ Nonfarm portion of feed, seed, and livestock purchases.
6/ Preliminary.

Source: U.S. Department of Agriculture, 1972

TABLE 16

FARM PRODUCTIVITY: INDEXES OF OUTPUT PER UNIT OF INPUT BY REGIONS, 1950-72
(1967 = 100)

YEAR	NORTHEAST	LAKE STATES	CORN BELT	NORTHERN PLAINS	APPALACHIAN	SOUTHEAST	DELTA STATES	SOUTHERN PLAINS	MOUNTAIN	PACIFIC	UNITED STATES
1950	68	75	74	76	77	66	63	72	74	81	73
1951	69	77	72	72	81	72	65	70	75	83	73
1952	69	80	76	77	79	68	68	73	79	86	76
1953	73	80	75	71	79	77	74	77	84	89	77
1954	75	81	76	73	82	70	74	79	78	92	78
1955	75	82	79	70	86	83	85	81	81	90	81
1956	79	86	82	70	92	83	82	79	82	92	82
1957	78	87	82	80	83	78	75	85	87	93	83
1958	85	91	88	97	90	82	78	97	93	93	89
1959	85	93	90	83	91	84	91	97	90	97	90
1960	89	94	93	98	95	88	89	103	91	94	93
1961	92	99	94	89	97	92	95	106	91	94	94
1962	89	97	94	97	99	94	97	99	93	96	95
1963	91	102	99	95	101	97	105	100	96	97	98
1964	93	99	95	94	102	93	107	102	93	99	97
1965	96	98	100	99	97	97	106	110	98	100	100
1966	92	101	96	98	95	92	100	102	96	103	97
1967	100	100	100	100	100	100	100	100	100	100	100
1968	95	102	99	102	95	90	109	109	102	104	101
1969	99	99	97	107	101	95	104	101	104	107	101
1970	102	102	92	100	100	96	111	107	109	109	101
1971	103	107	107	116	101	108	114	98	112	112	108
1972 1/	93	107	106	117	103	105	118	110	112	114	109

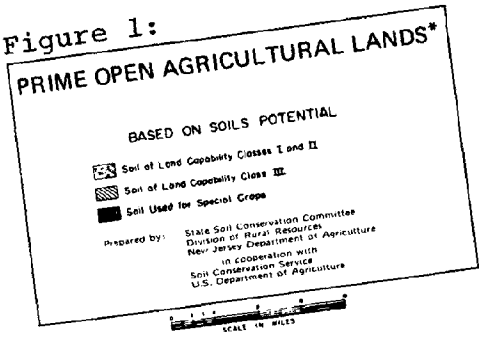
1/ Preliminary

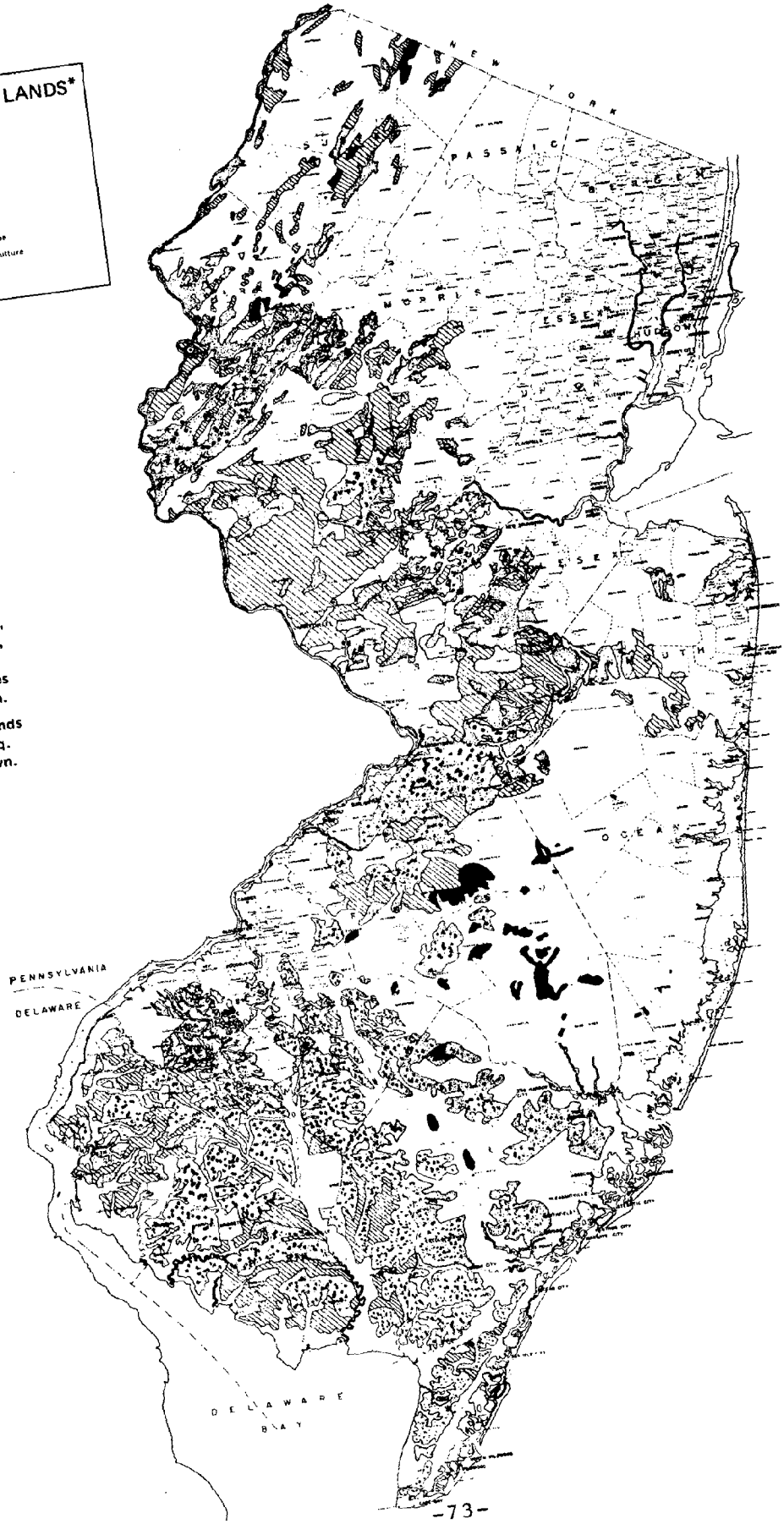
Table 17: New Jersey: Number of Farms, Land In Farms And Average Size of Farms, 1952-1973

Year	Farms -Number-	Land in Farms -Acres-	Average Size of Farm -Acres-
1952.....	25,000	1,720,000	69
1953.....	24,000	1,710,000	71
1954.....	23,000	1,700,000	74
1955.....	21,600	1,650,000	76
1956.....	20,200	1,600,000	79
1957.....	19,000	1,560,000	82
1958.....	18,000	1,530,000	85
1959.....	17,000	1,500,000	88
1960.....	15,800	1,460,000	92
1961.....	15,200	1,440,000	95
1962.....	14,600	1,410,000	97
1963.....	13,300	1,370,000	103
1964.....	12,000	1,300,000	108
1965.....	11,000	1,220,000	111
1966.....	10,000	1,160,000	116
1967.....	9,500	1,120,000	118
1968.....	9,100	1,080,000	119
1969.....	8,900	1,080,000	121
1970.....	8,600	1,060,000	123
1971.....	8,500	1,050,000	124
1972.....	8,300	1,045,000	126
1973.....	8,100	1,035,000	128
1974.....	8,000	1,030,000	
1975.....	7,900	1,025,000	

Source: New Jersey Agricultural Statistics, 1971

Figure 1:





Note:

1. Prime farmland areas in Bergen, Essex, Hudson, Passaic and Union counties are not shown.
2. Prime farmlands less than 1 Sq. Mi. not shown.

* Unique agric. forests and agric. deer wintering areas are mapped; but no shown.

FIGURE 2

GROSS FARM PRODUCT AND GSP

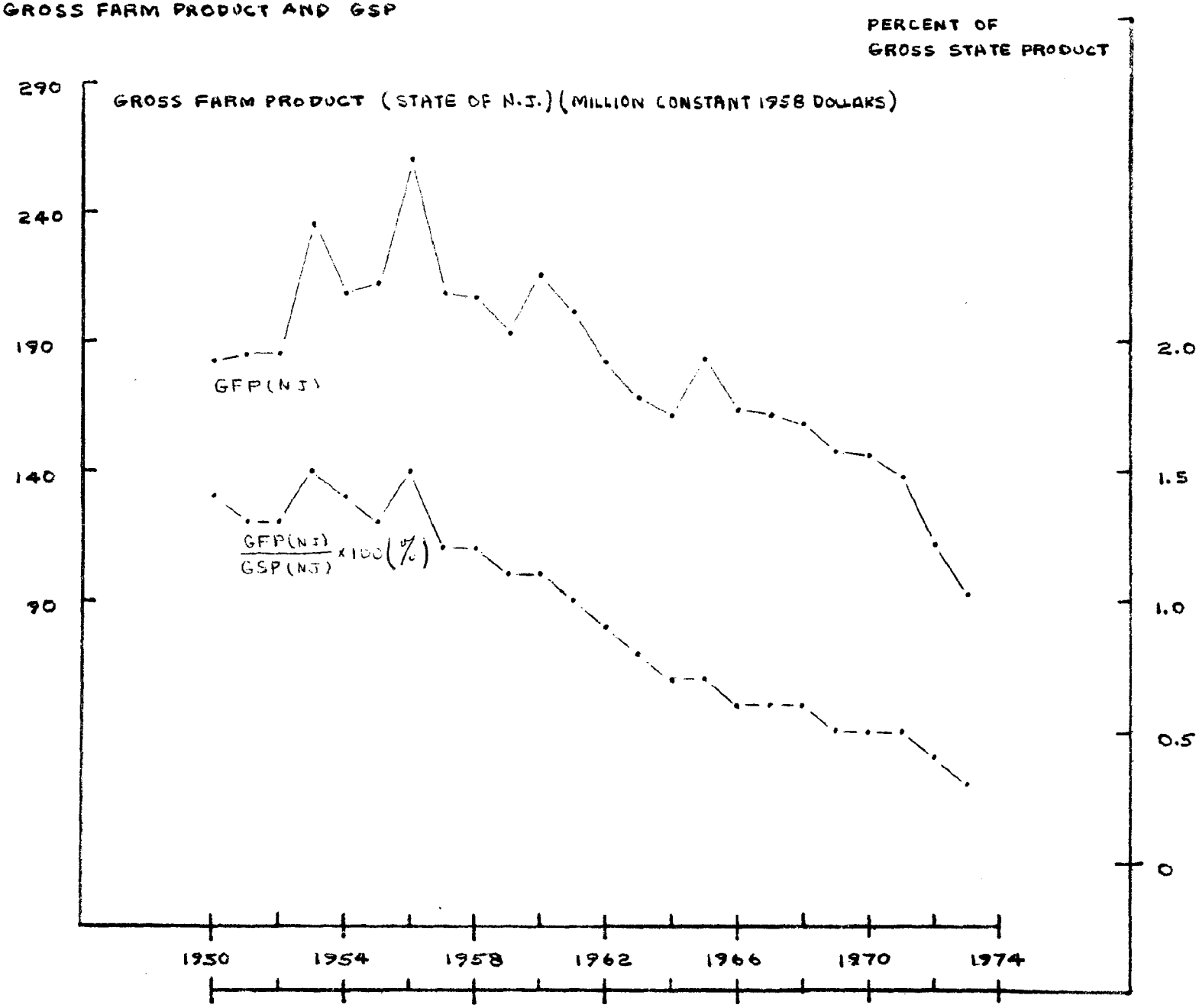


FIGURE 3

GROSS FARM PRODUCT AND GNP

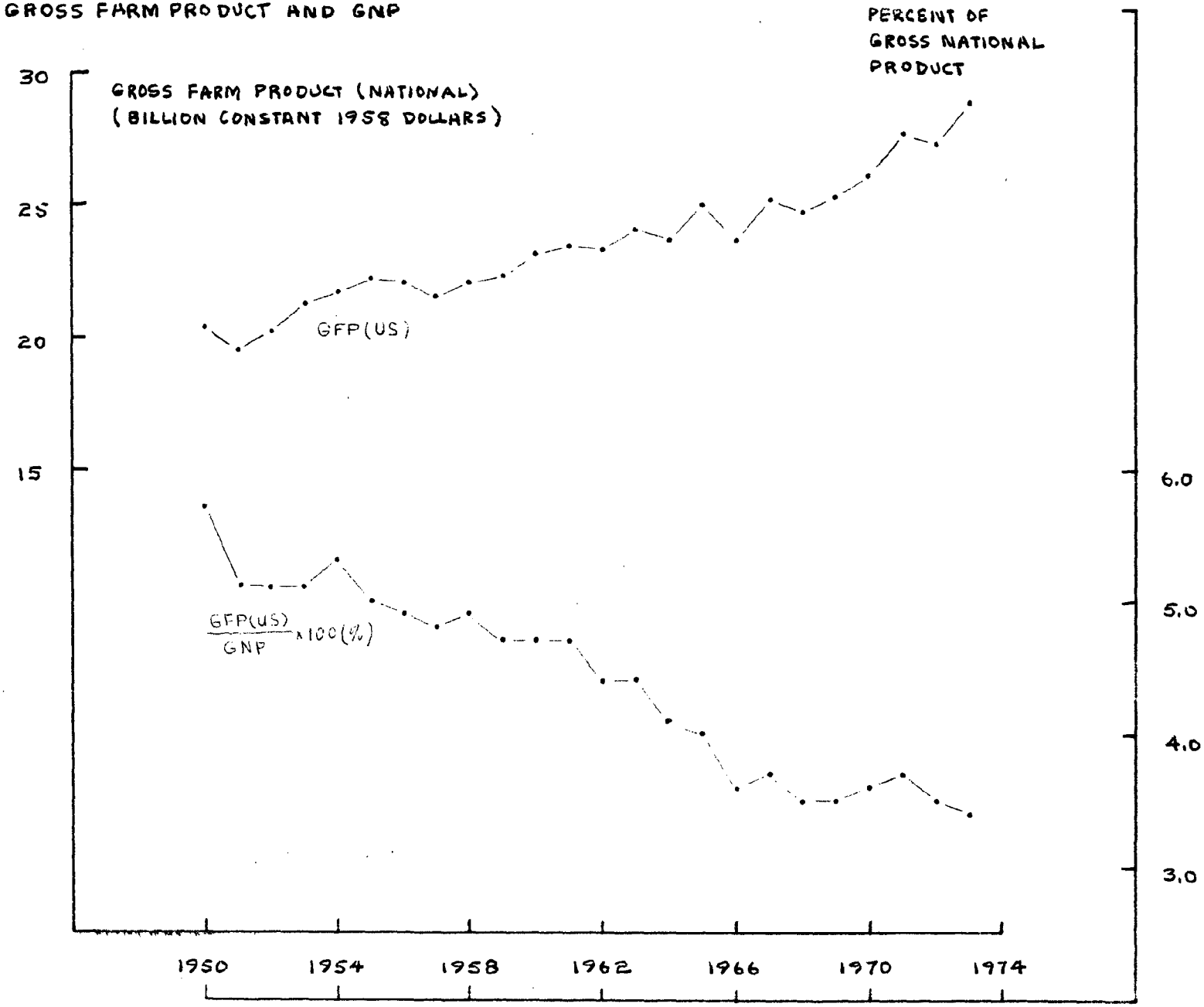
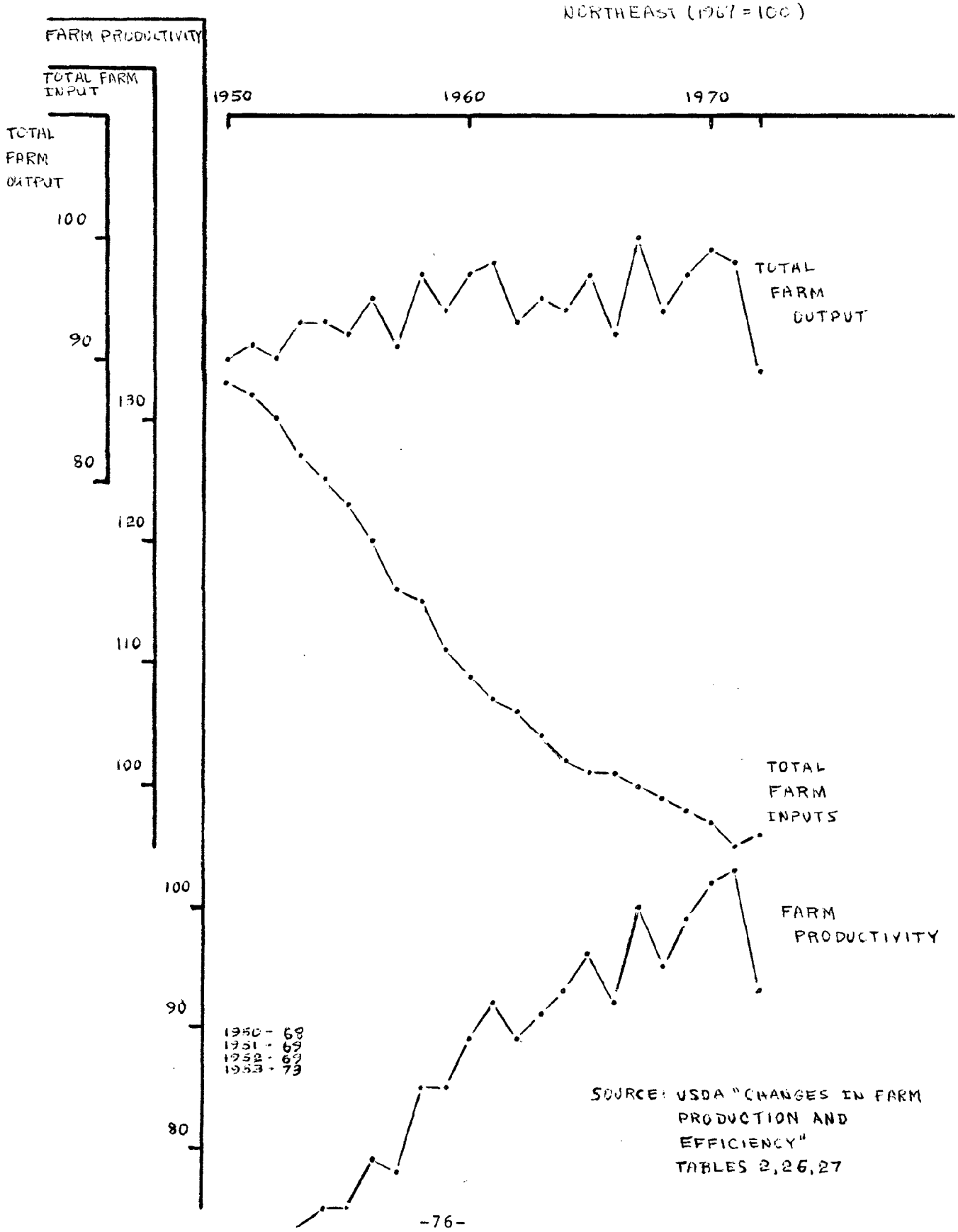


FIGURE 4

INDEXES OF TOTAL FARM OUTPUT, TOTAL FARM INPUT, AND PRODUCTIVITY FOR THE NORTHEAST (1967 = 100)



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APPENDIX E

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SOURCES

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